

CLAIMS

1. An optical fiber having at least one Bragg grating, the fiber comprising a core surrounded successively by cladding and by a coating, said fiber being obtained by
5 directly writing said grating in the core and/or the cladding through the coating which is made of a material that is substantially transparent to the ultraviolet type radiation used for writing said grating, in which the material of said coating contains a first polymer network
10 interpenetrated by a second polymer.
2. An optical fiber having at least one Bragg grating according to claim 1, in which said first polymer network is obtained from a first component that is cross-linkable
15 by one of the following cross-linking operations: photocuring and thermocuring.
3. An optical fiber having at least one Bragg grating according to claim 2, in which, when the second polymer
20 forms a second polymer network, said polymer network is obtained from said first cross-linkable component by a first of said cross-linking operations and the second polymer network is obtained from a second cross-linkable component by a distinct second one of said cross-linking
25 operations.
4. An optical fiber having at least one Bragg grating according to claim 3, in which the first component is a photocurable polymer precursor carrying a photocuring
30 function preferably selected from acrylate, methacrylate, thiol polyene, epoxy, and vinyl ether functions, and said second component is a precursor for a thermocurable polymer.
- 35 5. An optical fiber having at least one Bragg grating according to claim 1, in which said material is obtained from a liquid mixture comprising 3% to 95% by weight of a

precursor of photocurable silicone and preferably 64.5%, and 5% to 97% by weight of a precursor of thermocurable silicone, and preferably 35.5%.

- 5 6. An optical fiber having at least one Bragg grating according to claim 1, in which, when the second polymer forms a second polymer network, said first polymer network is obtained from said first photocurable component by a cationic method and said second polymer network is obtained from a second photocurable component by a radical method.
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7. An optical fiber having at least one Bragg grating according to claim 1, in which said second polymer is a thermoplastic preferably selected from polyvinylidene fluorides and copolymers of polyvinylidene fluorides and polyhexafluoropropene.
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8. An optical device incorporating a fiber having a Bragg grating, the fiber comprising a core surrounded successively by cladding and by a coating, said grating being obtained by being written directly in the core and/or the cladding of the fiber through the coating which is made of a material that is substantially transparent to ultraviolet type radiation used for lighting said grating, wherein the material of said coating contains a first polymer network interpenetrated with a second polymer.
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